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DEPARTMENT OF NATURAL RESOURCES
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June 6, 2006

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Superfund

Mr. Dan Wall
U.S. EPA, Region VII
901 N. 5th Street
Kansas City, KS 66101

RE: West Lake Landfill, Operable Unit 2, Draft Feasibility Study Report, April 2006

Dear Mr. Wall:

The Missouri Department of Natural Resources has completed its review of the above referenced document, prepared by Herst and Associates, Inc., and is transmitting the enclosed final comments for your records. These comments have been previously submitted in draft form in order to expedite the revision of the document. Comments have been compiled by the department's Hazardous Waste Program's, Federal Facilities Section, with assistance from other programs within the department, in addition to other state departments. These included the Solid Waste Management Program, Air Pollution Control Program, the Division of Geology and Land Survey, and the Missouri Department of Health and Senior Services.

The main issues include: 1) Document Structure; 2) ARARs; 3) Remedial Alternatives; 4) Landfill Gas; and 5) Air Quality Issues. Attached to this letter are comments outlining these and other issues, in more detail.

Thank you for giving us the opportunity to review and comment on this document. If you have any questions or need further clarification, please call me at (573) 751-3107. Address any written communication to my attention at the Department of Natural Resources, Hazardous Waste Program, P.O. Box 176, Jefferson City, MO 65102.

Sincerely,

HAZARDOUS WASTE PROGRAM

Shawn Muenks

Shawn Muenks, Environmental Engineer
Federal Facilities Section

SM:dd

c: Jim Bell, Solid Waste Management Program
Jeffry D. Bennett, Air Pollution Control Program
Gale Carlson, Missouri Department of Health and Senior Services
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Myrna Rueff, Division of Geology and Land Survey
Aaron Schmidt, Hazardous Waste Program
Darrick Steen, Water Protection Program

Enclosure

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Comments on the
West Lake Landfill Operable Unit 2
Draft Feasibility Study

GENERAL COMMENTS:

1. **Document Structure**
   The current document structure makes certain sections difficult to follow and are consequently difficult to read and review. As the remedial alternatives will mostly be targeted towards the inactive site, the department suggests that the discussion on the demolition landfill and the formerly active landfill site be separated from the inactive site. This change will be particularly helpful to the readability of the ARAR analysis section. The revised section containing the demolition and former active site would include, but not be limited to, a discussion on the following:
   a) Physical condition of the sites
   b) The unique characteristics associated with the former active site (the gas and leachate generation issues, close proximity to industrial development, etc),
   c) A statement describing the current status of compliance with respect to its Missouri State permit, with a brief discussion of deficiencies, if any, that may exist and the corrective action associated with them.
   d) ARARs associated with the sites
   e) Discussion of control technologies implemented at the site (gas collection system, leachate collection system, leachate and gas monitoring, etc.)

2. **Applicable or Relevant and Appropriate Requirements (ARARs)**
   The ARAR section in the document falls short of the state's expectations for this Feasibility Study. The ARAR section is confusing, it jumps back and forth from the inactive site to the demolition site to the formerly active site. In some places it is too wordy as it goes into great detail to explain why a regulation is not an ARAR. The ARAR section also completely overlooks air pollution regulations and their application for OU-2. The department disagrees with the conclusion of the analysis of the relevant and appropriate nature of Missouri Subtitle D regulations. We are disappointed that much of this section of document is spent on a long drawn-out discussion about why subtitle D requirements are not an ARAR for OU-2. A more meaningful discussion was expected about how the Missouri Solid Waste Regulations relate to the project, and how the relevant sections could be applied. It has been the department's intent, which has been expressed in previous correspondence over the years, that Missouri Subtitle D requirements will be the governing requirements used to create the proposed remedies for OU-2. In conclusion, the department recommends a general overhaul of most of the ARAR section. We recommend removing the long extraneous discussions on how a particular regulation does not qualify as a ARAR, instead, concentrating the discussion on how regulations can be applied to the project.

   The department has detailed below additional regulations, with the exception of air regulations which are discussed separately under Air Quality, that the department believes

should be included as ARARs for OU-2.

a) 10 CSR 80-2.030 *Post Closure Care and Corrective Action Plans*
As the OU-2 remedy will include an operation and maintenance component, this Missouri Solid Waste Regulation sets forth standards for the development of such plans.

b) 19 CSR 20-10.040 *Protection Against Ionizing Radiation*
As OU-2 is part of a larger landfill site in which portions contain radioactive waste and therefore may have the potential for exposure, all regulations that pertain to the protection of onsite workers and personnel and to the general public outside the controlled area will apply.

c) 10 CSR 60-4 *Missouri Drinking Water Standards and MCL's*
Although the Federal Safe Drinking Water Act is listed as an ARAR, the state of Missouri's promulgated drinking water regulations should also be listed, as some requirements may be more restrictive than the Federal regulations.

d) Noise Control Act

e) 10 CSR 23-4 *Monitoring Well Construction Code*
As OU-2 contains existing groundwater monitoring wells, new or replacement wells may be needed; and as existing wells may need removed, the state's regulations on monitoring wells will apply.

f) 10 CSR 20-6.200 *Stormwater Discharges and Management*
As stormwater from the site will be generated and managed, the state's regulations regarding stormwater management and the use of "best management practices" will apply. As a notice, prior to construction, a land disturbance permit will be required at the site, and the contractor will be required to submit a stormwater ARAR application for this to be issued.

g) 10 CSR 20-7.031 *Water Quality Standard*

3. Remedial Alternatives

The department recommends removing Alternative 2 in its entirety, and Alternative 4 from the Feasibility Study. Doing so will make the document less complex, easier to read, and allow the document to focus on the presumed remedy, Alternative 3. In addition to that, Alternative 2 utilizes the Federal Subtitle D regulations as its basis, and although not identical to Missouri Subtitle D regulations, they both describe the same technology with regard to the closure of landfills, with the state requirements being more restrictive in certain areas. With the Federal and State regulations being so similar, it seems redundant to propose alternatives for both. Furthermore, the fact that the landfill is located in the state of Missouri, should by design preclude the use of the less restrictive federal regulations. This recommendation is reinforced by the Feasibility Study itself in the last paragraph of Section 2.1.3.2 RCRA Subtitle D on page 21. Alternative 4, which will utilize a geosynthetic liner in

place of the clay cover, has not been previously discussed in past documents or correspondence, and may create more questions than answers. For example, there is no discussion on how a liner on the inactive site would be compatible with the entire OU-1 and OU-2 site. The OU-1 site, demolition landfill site, and the formally active site, either do not have a liner or do not have a liner proposed for closure, and therefore seems out of place for the inactive site.

4. **Landfill Gas**

The department has previously stated that the landfill gas sampling techniques, as described in the OU-2 Remedial Investigation and Feasibility Study, are not an acceptable method and did not adequately characterize and delineate the presence and extent of landfill gas at the site. However, the document attempts to confirm otherwise and seems to minimize the threat and potential exposure of landfill gas at this site. Given the unique conditions of portions of OU-2, and the enormous quantities of gas generated from it, the attempt to prove that landfill gas and its migration is not a concern on OU-2 is not appropriate. The department would rather see a discussion on the overall landfill gas issues at the site, how they may relate to each individual OU-2 site, and explain that current gas analysis of the inactive site is not adequate to fully determine the nature and extent of landfill gas. This discussion should go on to explain that as a result of this, additional landfill gas monitoring and analysis using current state accepted techniques will be completed as part of the remedy.

The department's Solid Waste Program provided the following comment on this issue:
The Solid Waste Management Program of the Missouri Department of Natural Resources has performed studies on gas sampling that were funded by the U.S. Environmental Protection Agency. Copies of these studies are available upon request. These studies show the procedures for getting a more accurate soil gas sample. The techniques for the type of sample and procedure for taking a sample described in the feasibility study, were shown to be misleading, typically providing false negative errors. Landfill gases may have been present but could not be detected. To their credit, the authors suggested that landfill gas control should be provided in the alternates considered.

5. **Air Quality Issues**

As discussed above in the General Comment 1, air regulations appear to be overlooked with no real discussion on the need for compliance with the Clean Air Act, and Missouri Air Quality Standards. This is especially important given the attainment status of the St. Louis metro area.

This ARAR section should discuss the National Ambient Air Quality Standards contained in the Clean Air Act and subsequent federal and state regulations. It should specifically mention the fact that Bridgeton is located in St. Louis County, which has been designated a non-attainment area for ozone and particulate matter less that 2.5 microns ($PM_{2.5}$). This is important because releases of volatile organic compounds (VOCs) or burning/flaring of landfill off-gases are detrimental to air quality in the St. Louis non-attainment areas for ozone and $PM_{2.5}$.

Since this facility is a major source of air emissions (plant number 189-0312) in the St. Louis non-attainment area. We would encourage any means to reduce volatile organic compound (VOC), particulate matter ($PM_{10/2.5}$), and oxides of nitrogen (NOx) emissions that would be part of this cleanup. Also, there appears to be a need to determine the extent of any Hazardous Air Pollutants (HAPs) for the cleanup and identify any further action necessary based on Missouri air quality regulation.

The department has listed below air regulations that would most likely apply to the site:

1. 10 CSR 10-5.160 *Control of Odors in the Ambient Air in the St. Louis Metro Area*
2. 10 CSR 10-5.490 *Municipal Solid Waste Landfills in the St. Louis Metro Area*
3. 10 CSR 10-6.060 Appendix J *Air Quality Analysis for Hazardous Air Pollutants*
4. 10 CSR 10-6.170 *Restriction of Particulate Matter to the Ambient Air beyond the Premises of Origin*
5. 10 CSR 10-6.220 *Restriction of Emission of Visible Air Contaminates*
6. 10 CSR 10-6.310 *Restriction of Emissions from Municipal Solid Waste Landfills*
7. 40 CFR 61 (NESHAP) *National Emissions Standards for Hazardous Air Pollutants*

SPECIFIC COMMENTS:

1. **Section 1.2.3** ***Nature and Extent of Contamination,*** **page 5-6** – The OU-2 site adjoins OU-1 and contains radioactive materials dispersed throughout the OU-1 site. This radioactive material decays to form radon gas that has the potential to migrate through the landfill, potentially along with other landfill gasses. Since their appears to be no current data on whether radon gas is mixed with other landfill gases in OU-2, discussion on how radon gas will be managed if detected in the gas on either the inactive site or detected in the active gas collection system at the formerly active landfill should be included.

2. **Section 1.2.3** ***Nature and Extent of Contamination,*** **page 6** – The last sentence in this section states that impacted groundwater on site is not measurably affecting downgradient surface waters and sediments. In what way is this groundwater plume effecting groundwater outside the boundary of the landfill, and does this plume represent a concern for soil vapor intrusion (VOC's and hydrocarbons) offsite into adjacent structures?

3. **Section 1.3** ***Baseline Risk Assessment,*** **page 6** – The EPA's presumptive remedy streamlined approach to evaluating risks at Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) municipal landfill sites, differs from the typical baseline risk assessment in that quantitative calculations of intakes and risks are not conducted. In the EPA reference fact sheet, Directive No. 9355.0-49FS, for developing presumptive remedies for municipal landfills, Section 3.0 states, "it may be appropriate to consider future residential use for groundwater and other exposure pathways when assessing risk from areas of contaminant migration." Due to the fact that the site is almost completely surrounded by commercial/industrial properties, in addition to discussing the direct ingestion of groundwater exposure pathway, the potential worker risks due to vapor intrusion to future or

existing commercial buildings should be discussed because there is on-site groundwater with petroleum products and other volatile organic compounds above the maximum contaminant levels.

4. **Section 1.3 *Baseline Risk Assessment,* page 7-8** – This section states that the parameters detected in the landfill gases are unlikely to pose an exposure concern at the detected levels. Given that there is no evidence to exclude radon gas as a potential hazardous gas in OU-2, and that an analysis of radon gas has not been completed for OU-2, how can this statement be made?

5. **Section 2.1.1 *Potential Chemical-Specific ARARs or TBCs,* bullets, page 12** – The Missouri Risk-Based Corrective Action Process (MRBCA) for Petroleum Storage Tanks is not included in the bullets in Section 2.1.1. MRBCA is discussed in Section 2.1.1.5 MRBCA Process for Petroleum Storage Tanks (February 2004) page 16. MRBCA should be included in the list of Potential Chemical-Specific ARARs and TBCs in Section 2.1.1 as a suggested guidance.

6. **Section 2.1.1 *Potential Chemical-Specific ARARs or TBCs,* page 12** – Please include 10 CSR 10-6.060 Appendix J, Air Quality Analysis for Hazardous Air Pollutants (HAP) in this section. This regulation is a construction permit regulation, but includes the following specific requirements for any emission increase of Hazardous Air Pollutants in Missouri:

   a) "The director shall maintain a table of emission threshold levels, risk assessment levels, and screening model action levels for hazardous air pollutants. Applicant will not be required to submit a hazardous air pollutant air quality analysis for applications having a maximum design capacity no more than the hazardous air pollutant emission threshold levels unless paragraph (12)(J)(2) applies.

   b) Exceptions. The director may require an air quality analysis for applications if it is likely that the construction or modification will result in the discharge of air contaminants in quantities, of characteristics and of a duration which directly and proximately cause or contribute to injury to human, plant, or animal life or the use of property or complaints filed in the vicinity of the proposed construction or modification warrant an air quality analysis."

   This regulation would require an air quality analysis of any HAP that exceeds these threshold values. Since the draft report does not contain any specific emissions of HAPs it is impossible to determine if these levels are exceeded. It is also important to note that these threshold values often contain concentration levels for the 1-hour, 8-hour, or 24-hour timeframes as well as long-term exposures.

7. **Section 2.1.1.2 *PRG's,* page 13** – This section discusses PRG's for landfill gasses and seems to only consider on-site exposures. In the case that gases migrate offsite, shouldn't offsite exposures be considered here?

8. **Section 2.1.3.3 *Missouri Solid Waste Rules for Sanitary Landfills and Demolition Landfills, Air Quality / Gas Control Sections,* pages 24-25** – These sections should re-emphasize the need for compliance with Missouri air quality regulations and the Clean Air Act, along with an understanding of the current attainment status of the St. Louis area.

9. **Section 2.1.1.3 *CWA,* page 14** – The correct phrase is "National Pollutant (not Pollution) Discharge Elimination System".

10. **Section 2.1.3.3 *Missouri Solid Waste Rules for Sanitary Landfills and Demolition Landfills, Air Quality / Gas Control Sections,* pages 29** – The last sentence on this page states, "the purposes underlying the regulatory requirements are satisfied, or can be satisfied, at the OU-2 without imposing landfill closure and cover standards on the West Lake remedy as ARAR's." The argument made that, because the regulatory requirements can be met those requirements should not be ARARS, is not justification to exclude the very regulations that are being followed. Please remove this statement from the documents.

11. **Section 3.0 *Response Action Objectives,* page 30** – We suggest that because no information is available on potential migration of radon gas from OU-1 to OU-2, radon gas sampling be part of the future landfill gas monitoring.

12. **Section 4.0 *Response Action Objectives/Presumptive Remedy, Hot Spots,* third paragraph, page 46** – There is a probable typographical error in the sentence beginning with "The Federal Subtitle D". The word requireme should probably be changed to requires.

13. **Section 5.2 *Alternative 2 – Subtitle D-prescribed Cover with Long-Term Monitoring and Institutional Controls,* third paragraph, page 50** – The department's Geological Survey Program did not expect that radon gas would be a potential concern at the Inactive Landfill. Radioactive waste was deposited in other areas of the site and it is unlikely that there are other natural sources for radon underlying the landfill. Additional information should be provided to explain why radon gas may accumulate in future structures built on or near the Inactive Landfill.

14. **Section 7.7 *Cost,* second paragraph, page 66** – The costs and assumptions leading to those costs are not detailed in this report. The following was provided:

    "Cost estimates are provided in 2006 dollars and include a 25% costing and scoping contingency. For capital cost items, percentage costs for contractor markup, mobilization/demobilization, and insurance (10%); engineering, permitting, and construction management (20%); and regulatory oversight (2.5%) are added to the estimated construction cost subtotal. Present worth cost estimates assume a 7% discount rate in accordance with the most recent EPA guidance (USEPA, 2000)."

    The Missouri Office of Administration, Division of Facility Management, Design and Construction schedule of costs for regulatory oversight should be reconsidered for the small projects that will be needed over the 30-year period. A current 2006 project,

Y060101, estimated at $64,000, is costing $8900 in regulatory oversight, or about 14%. That cost does not include the costs of engineering, permitting and construction management. That percentage exceeds the 2.5% proposed for small projects in the Feasibility Study. The smaller percentage would be appropriate if the repairs were done in one large project. Maintenance projects more often are numerous small projects, and are charged a higher percentage.

15. **Table 2-1: Preliminary Identification of Potential Chemical-Specific ARARs and TBC Criteria** – is incorrect in the referencing the Cleanup Levels for Missouri (CALM) document as a potentially applicable requirement for total petroleum hydrocarbons (TPH) in groundwater, but rather the guidance for the *Missouri Risked-Based Corrective Action for Petroleum Tanks* should be referenced.

16. **Table 2-3: Preliminary Identification of Potential Action Specific ARARs and TBC Criteria** – A potential action specific ARAR not included in Table 2-3 is 10 CSR 23-4.010, which is a state rule which regulates the construction, registration and abandonment of monitoring wells. It is recommended that this potential action specific ARAR be added to Table 2-3.

17. **Appendix C Cost Estimate Details**
Observations of landfill covers with less than 24 inches of soil included thin to no vegetation particularly when the vegetation was placed under the stress of dry, hot summers. These observation were on landfills that were generating lots of gas and that had not been closed for more than five years. Soils were rocky showing little of the fertility of topsoil. The use of the Alternate 2 cover, should include a higher maintenance cost to re-seed grasses as necessary, to prevent erosion of the cover.